Appendix B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

OCT 13 2016

Mr. Stuart Spencer
Associate Director, Office of Air Quality
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

Dear Mr. Spencer:

I am writing today to provide our preliminary views on supplemental comments received from Entergy regarding a proposed alternative strategy for their White Bluff facility. These comments were received on August 8, 2016, well outside the comment period, and therefore could not be considered in our final Federal Implementation Plan (FIP) action, for which we were under a court-ordered deadline of August 31, 2016 (Sierra Club v. Gina McCarthy, No. 4.14CV00643JLH (ED Ark. Western Div. Nov. 3, 2015)). We believe, however, that the alternative plan proposed by Entergy in their comments has potential merit with respect to addressing the best available retrofit technology (BART) requirements for White Bluff, and if the issues identified in the enclosure were to be addressed, could provide the basis for an approvable State Implementation Plan (SIP) revision. If Arkansas believes that Entergy's alternative plan is a more appropriate course, we would be happy to continue to work with you on such a SIP revision that could replace the FIP requirements for the White Bluff units.

Please contact me at 214-665-7548, or Guy Donaldson, of my staff, at 214-665-7242, if you would like to discuss further.

Sincerely,

Mark Hansen
Associate Director for
Air, Multimedia Division

Enclosure

cc: Kelly McQueen
Assistant General Counsel, Entergy

Enclosure:

Entergy's August 8, 2016 letter requests that the sulfur dioxide (SO_2) BART determination for the White Bluff units be either an emission limit of 0.06 lb/MMBtu on a 30 boiler-operating-day rolling average consistent with the installation of dry flue gas desulfurization (dry FGD), or as an alternative to the installation of these controls, a binding requirement to (1) cease coal fired operation at one unit by the end of 2025 and the other unit by the end of 2026 and (2) limit the operation of one unit to a capacity factor of no greater than 50 percent in 2025. In addition, Entergy requests a revised nitrogen oxide (NO_X) BART emission limit of 1,305 lb/hr for periods when the White Bluff units are operating at a low capacity factor. Based on the information provided in the August 8, 2016 comment letter, an approvable SIP revision that includes Entergy's requested BART determinations for White Bluff must also include certain additional information and documentation to fully support those BART determinations. The additional information and documentation that are needed are discussed in the paragraphs that follow.

Enforceable Mechanism

If Arkansas agrees that it would be appropriate to take the alternative approach for White Bluff, the SIP revision must include an enforceable mechanism which requires that Entergy (1) cease coal combustion at White Bluff by the end of 2025 at one unit and by the end of 2026 at the other unit, and (2) limit operation of one unit to a capacity factor of no greater than 50 percent in 2025.

Revised dry FGD Cost Analysis

As part of the BART analysis, a demonstration that dry FGD is no longer cost-effective in light of a shorter remaining useful life for the White Bluff units must be included in the SIP revision. Entergy's August 8, 2016 letter includes an updated BART analysis of the five statutory BART factors. In this analysis, Entergy relies on the cost analysis prepared in 2015 by Sargent & Lundy (2015 Sargent & Lundy cost analysis), and indicates that the cost effectiveness of dry FGD would range from $10,400 to $11,800/ton removed at each unit if coal combustion were to cease in 2025 and 2026. As discussed in our Arkansas FIP signed on August 31, 2016, the 2015 Sargent & Lundy cost analysis presents problems that prevented us from using it in our FIP, primarily because it is undocumented. For example, the 2015 Sargent & Lundy cost analysis uses a 2013 Alstom quote as its basis, but the 2013 Alstom quote is not provided in the 2015 Sargent & Lundy cost analysis. This omission prevents us from verifying the scope of work covered in that cost analysis. In addition, certain costs included in the 2015 Sargent & Lundy cost analysis were not documented. An approvable SIP revision that relies on the 2015 Sargent & Lundy cost analysis must include corrections of the issues we identified with that cost analysis, as discussed in our Arkansas FIP. Alternatively, the SIP revision could rely on our revised cost analysis for dry FGD, as presented in our Arkansas FIP, to calculate the cost effectiveness of dry FGD in light of the shorter remaining useful life.

Additionally, in the updated BART five factor analysis provided in Entergy's letter, the cost effectiveness of dry FGD controls was calculated based on an assumption that the annual emissions reductions achieved with dry FGD would be lower if the unit were restricted to operate at a capacity factor of no greater than 50 percent in 2025. Additional explanation of how the annual emissions reductions were calculated and the calculations themselves must be provided to properly support the assumed annual emissions reductions. The updated BART five factor analysis also includes a revision of

the direct variable and fixed operation and maintenance (O&M) costs to reflect operating at a capacity factor of no greater than 50 percent in 2025. The calculations of the revised direct variable and fixed O&M costs must be provided.

Evaluation of DSI as an Interim Control

As discussed in our Arkansas FIP, because section 51.308(e)(1) and the BART guidelines require that a subject-to-BART source install and operate the best available emission reduction technology based on the five statutory factors, it is necessary to consider whether there are any additional SO_2 control measures (beyond the interim SO_2 emission limit of 0.6 lb/MMBtu proposed by Entergy) that constitute BART during the interim period before coal combustion ceases at the White Bluff units. In particular, dry sorbent injection (DSI) has a relatively low capital cost and may be cost effective even if operated for a short period of time. An approvable SIP revision must include a full BART analysis that considers and evaluates DSI to determine if it constitutes BART during the interim period. This evaluation must include the following:

- Evaluation of the feasibility and capability of DSI at the White Bluff units, including the anticipated range of emissions reductions. This may include evaluation of the existing particulate matter (PM) control equipment and any need for potential additional PM control equipment to handle the additional PM load. The BART analysis must include documentation of the need for any additional PM control equipment needed to handle the additional PM load.
- Cost evaluation of DSI and any necessary additional PM control equipment (including supporting documentation) that takes into consideration the remaining useful life of the units.
- Evaluation of the potential visibility benefits of DSI controls.
- Evaluation of any energy and non-air quality environmental impacts of DSI controls.

Entergy's Refined NO_X BART Emission Limit

With regard to appropriate NO_X BART limits, Entergy's letter states that it "has refined its analysis of the proposed NO_X limitation," and determined that a NO_X emission limit of 1,305 lb/hr is achievable and appropriate as NO_X BART for the White Bluff units when they are operated at less than 50 percent of capacity. While we understand Entergy's concerns about not being able to meet an emission limit of 0.15 lb/MMBtu on a 30 boiler-operating-day rolling average when the units are operated at less than 50 percent of capacity, there is no information presented in Entergy's letter to demonstrate that an emission limit of 1,305 lb/hr is sufficiently protective or appropriate when the units are operated at low capacity. In particular, we discussed in our Arkansas FIP that the 1,342.5 lb/hr emission limit Entergy initially requested in the comments submitted during the comment period appeared to be based on the maximum heat input rating for each unit and therefore was not an appropriate emission limit for operation at low capacity. The revised emission limit Entergy requests in the August 8, 2016 letter is only slightly lower. Entergy provided no information demonstrating that this limit would be sufficiently protective or appropriate when the units are operated at low capacities considering that NO_X emissions on a mass basis are expected to be lower when the units are operated at low capacity compared to operation at high capacity. As the Regional Haze Rule requires the identification and evaluation of the highest level of control a particular control technology is capable of achieving (see 64 FR at 35740), additional information must be provided to document and demonstrate that 1,305 lb/hr is appropriate and sufficiently controls NO_X emissions using LNB/SOFA when the units are operated at less than

50 percent of capacity. This additional information could consist of the refined analysis Entergy mentions in page 5 of the supplemental comments attached to the August 8, 2016 letter and/or a vendor guarantee.

Entergy's Updated NO_X Control Costs

Entergy's August 8, 2016 letter provides an updated calculation of the cost effectiveness of NO_X controls that takes into consideration a shortened remaining useful life for the White Bluff units. The updated calculation of the cost effectiveness of NO_X control costs appears to be based on the cost analysis included in Entergy's "Revised BART Five Factor Analysis for White Bluff Steam Electric Station Redfield, Arkansas (AFIN 35-00110)," dated October 2013. As discussed in our FIP proposal (see 80 FR at 18973), that cost analysis of NO_X controls included certain line items that were not documented by Entergy and do not appear to be valid costs under the Control Cost Manual methodology. The updated calculation of the cost effectiveness of NO_X controls must be based on a cost analysis that either properly documents these line items or eliminates them from the total annual cost estimate.

Additionally, Entergy's updated calculation of the cost effectiveness of NO_X controls assumes that the annual emissions reductions achieved would be lower if the unit is restricted to operate at a capacity factor of no greater than 50 percent in 2025. Additional explanation of how the annual emissions reductions were calculated and the calculations themselves must be provided to properly support the assumed annual emissions reductions. In the updated cost analysis, Entergy also revised the direct variable and fixed O&M costs of NO_X controls to reflect operating at a capacity factor of no greater than 50 percent in 2025. The calculation of the revised direct variable and fixed O&M costs must be provided.

CSAPR Better than BART

As discussed in our Arkansas FIP, we proposed and ultimately finalized source specific NO_X BART determinations for Arkansas' electric generating units (EGUs) instead of relying on the Cross State Air Pollution Rule (CSAPR) because at the time of our proposed action, this approach properly accounted for uncertainty in the CSAPR better-than-BART regulation created by ongoing litigation regarding the CSAPR program. This approach was also consistent with Arkansas' earlier decision to conduct source-specific NO_X BART determinations in lieu of relying on CSAPR's predecessor, the Clean Air Interstate Rule, to meet the BART requirements. In addition, after we proposed the Arkansas FIP, the D.C. Circuit issued a July 2015 decision in *EME Homer City Generation v. EPA* upholding CSAPR but remanding without vacatur a number of the Rule's state NO_X and SO_2 emissions budgets (795 F.3d 118 (D.C. Cir 2015)). Arkansas' ozone season NO_X budget is not itself affected by the remand. However, the Court's remand of the affected states' emissions budgets has implications for CSAPR better-than BART, since the demonstration underlying that rulemaking relied on the emission budgets of all states subject to CSAPR, including those that the D.C. Circuit remanded, to establish that CSAPR provides for greater reasonable progress than BART. We are in the process of acting on the Court's July 2015 remand. On September 7, 2016, we finalized an update to the CSAPR ozone season program by issuing the CSAPR Update. This rule addresses the summertime (May – September) transport of ozone pollution in the eastern United States that crosses state lines to help downwind states and communities meet and maintain the 2008 ozone national ambient air quality standard (NAAQS), and also responds to the Court's remand of the Phase 2 ozone season NO_X budgets for 11 states. The CSAPR Update also

promulgates a FIP for Arkansas that establishes an EGU NO_X ozone season emission budget to reduce interstate transport for the 2008 ozone NAAQS. We are in the process of responding to the Court's remand of the Phase 2 SO_2 emission budgets for four states, consistent with the planned response we outlined in a June 2016 memorandum.[1] We expect that the uncertainty created by the D.C. Circuit's remand of the affected states' emission budgets will shortly be resolved. The CSAPR Update does not include determinations or establish any presumptions that compliance with that rule satisfies NO_X BART for EGUs. However, the Environmental Protection Agency's preliminary analysis indicates that CSAPR participation will remain an appropriate BART alternative for all states participating in CSAPR (either by FIP or SIP adoption). We intend to determine whether compliance with CSAPR will continue to be an appropriate BART alternative in another rulemaking soon that takes into account the changes to CSAPR following the July 2015 remand. If EPA finds that CSAPR continues to provide for greater reasonable progress than BART,[2] the State may submit a SIP revision that includes reliance on CSAPR to satisfy the NO_X BART requirements for Arkansas' EGUs instead of doing source-specific NO_X BART determinations.

Additional Information on Operation After Coal Combustion Ceases

Entergy's August 8, 2016 letter indicates that it anticipates ceasing coal combustion at White Bluff by the end of 2025 at one unit and 2026 at the other unit. A SIP revision that assumes a shorter remaining useful life for the units should include a discussion of the fuel types Entergy anticipates using after coal combustion ceases, including whether there will be a limit on the sulfur content of any fuel oil burned at the units.

[1] https://www3.epa.gov/airtransport/CSAPR/pdfs/CSAPR_SO2_Remand_Memo.pdf

[2] Alternatively, Arkansas could conduct an analysis that demonstrates compliance with the CSAPR Update for certain EGUs in Arkansas fulfills NO_X BART for those EGUs.